REMARKS

Election in response to restriction requirement

Applicants confirm election of Group III claims 16-22. All non-elected claims have been canceled by this amendment.

Amended Drawing

The Examiner has objected to the absence of reference number 18 in the drawings. The present amendment submits a replacement sheet in which reference character 18 is added to FIG. 2. This submission does not constitute new matter.

Status of claims

Claims 16 to 22 have been rejected as unpatentable in view of Roba (U.S. Patent 6,584,808 B1) combined with Spaapen (U.S. Patent 4,842,808), and further with Fletcher (U.S. Publ. App. 2004/0144133A1) or Shimizo (U.S. Publ. App. 2002/0148257) for dependent features.

Independent claim 16 as here amended recites a method for producing an optical component of quartz glass. The method comprises elongating a coaxial arrangement of a core rod and a hollow cylinder of a predetermined length. The arrangement is supplied in vertical orientation to a heating zone and is softened therein zonewise, starting with its lower end, and the component is drawn off downwards from a softened region of the arrangement. The hollow cylinder has an inner bore that is provided with a constriction in the region of its lower end on which the core rod is supported. A raw cylinder is provided which is longer than the hollow cylinder to be elongated. The method further comprises mechanically machining the raw

cylinder so that the raw cylinder has a bore that is mechanically machined to a final dimension. The raw cylinder bore is heated in a collapsing zone spaced apart from a front end of the raw cylinder at a distance corresponding at least to the length of the hollow cylinder so that the raw cylinder is collapsed in part. The hollow cylinder is subsequently separated in the region of the collapsing zone.

The claimed method for manufacturing an optical component allows for positioning of the core rod symmetrically within the hollow tube, with the beneficial result that when the tube is collapsed onto the core rod, a high quality optical fiber may be produced.

Roba discloses a method for manufacturing an optical fiber preform that utilizes a direct sleeving technology that collapses a sleeving tube onto a core rod. A fiber optic perform is formed by positioning a core rod 2 within a sleeving tube 8 so that an annular gap 11 is formed between the outer surface of the rod and the inner surface of the tube. See Fig. 1. The ends of the tube are thermally collapsed onto respective extreme ends of the rods while maintaining the annular gap over most of the length of the tube.

Roba does not show or suggest a method in which a raw cylinder, longer than the hollow cylinder to be produced, has a bore mechanically machined in it to a final dimension. Nor does Roba show or suggest heating the raw cylinder in a collapsing zone at a location spaced at least the length of the hollow cylinder from its end, so that the raw cylinder collapses in part, and the hollow cylinder is separated in the region of the collapsing zone.

In contrast, in the claimed method the inner bore of the raw cylinder is mechanically machined to a final dimension by mechanical machining, e.g., grinding, drilling and/or honing.

See specification, page 6, lines 10 to 17, and then the raw cylinder is partly collapsed to form the hollow cylinder. This methodology provides a number of advantages of efficiency of making hollow tubes, advantageous shape of the resulting constriction, and avoiding contamination by making tool contact unnecessary. Roba does not suggest these steps or provide a method with any of these advantages.

Spaapen teaches a method of manufacturing a low-pressure mercury vapor discharge lamp, in which a glass tube is separated into two equal lengths. In the process of drawing the tube ends apart, in the "short zone" 3, a constriction develops in the center of the tube. See Fig.2; see also, col. 3, lines 35 to 39. Eventually the glass separates at the constriction site and the end walls (6 and 7) of the glass tubes are flattened and closed off, as seen in FIG 4.

Spaapen does not form a cylinder with a constriction that can support a core rod on the constriction, and only accidentally bears some resemblance to the partial collapsing zone of the raw material in the present method. The constriction seen in the process is merely an intermediary step. Therefore, Spaapen cannot be combined with Roba to suggest a method as claimed of preparing a hollow cylinder with a constriction to support a core rod.

Fletcher and Shimizu are cited only for their teachings of structure that has a superficial similarity to structure described in dependent claims, in Fletcher, a conical taper or a notch, and in Shimizu, an annular heating element. These references therefore do not impact on the patentability of claim 16, which does not recite those elements.

Claim 16 therefore distinguishes over the cited references, and reconsideration of the rejections of claim 16 is respectfully requested.

The remaining claims, dependent claims 17 to 22, depend from claim 16 directly or indirectly, and therefore also distinguish over the cited prior art.

All objections of the Examiner having been addressed, and the claims herein having been shown to distinguish over the prior art in structure, function and result, formal allowance is respectfully requested.

Should any questions arise, the Patent Office is invited to telephone attorney for applicants at 212-490-3285.

Respectfully submitted,

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